MEMORANDUM:

DATE: 4 September 1998

SUBJECT: CTWG Subcategorization Report

FROM: Combustion Turbine Work Group

TO: ICCR Coordinating Committee

The Combustion Turbine Work Group (CTWG) formed a task group to examine which, if any, turbine subcategories warrant special consideration during the regulatory rulemaking process. The task group was comprised of one EPA representative and members of the turbine manufacturers and users communities. The attached document describes the deliberations of this task group and summarized their conclusions.

The CTWG concurs that this information may be valuable to EPA in developing regulations for combustion turbines and requests that the ICCR Coordinating Committee pass it to EPA as a Work in Progress Item.

Attachment: Summary of Subcategorization Deliberations

Subject: ICCR GT Work Group - Summary of Subcategorization Subgroup Deliberations

Subgroup Members: Greg Adams
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The reason for subcategorization is twofold: (1) To consider the development of separate regulations for each subcategory, or (2) To eliminate certain subcategories from regulation. The primary guideline in establishing a subcategory is that there should be something unique enough about a subcategory that it would need separate consideration in a regulation, or it might need separate regulation for cost/economic reasons.

The possible subcategories for gas turbines that are considered reasonable are:

Age - Pre-NSPS before 1979, NSPS 1979 - 1990, Post-NSPS after 1990
Size - smaller than 1 MW, 1-10 MW, 10-30 MW, larger than 30 MW
Fuel - natural gas, distillate oil, byproduct gas, syngas, crude, heavy oil, methanol
Combustor type - can, silo, annular - all either diffusion flame or staged premix
Firing Temperature - <1800^{o}F, 1800-2020^{o}F, 2020-2350^{o}F, >2350^{o}F
Configuration - simple cycle, combined cycle, regen/recuperative, mechanical drive
Add-on emission control - steam/water/nitrogen injection, SCR, CO catalyst, catalytic combustor
Use/application - utility (base-load, mid-range, peaking), IPP, cogen, pipeline
Cycle - Brayton, recuperative
Annual hours of use - less than 500, 500-1500, 1500-3500, >3500 hours
Mobility - portable, stationary

Other subcategories that might be considered include the following:
Cycle - Brayton, recuperative,. Kalina
Mobility - portable, stationary
Other - duct burners

The possible list includes 11 main categories and about 45 subcategories, which is obviously too many to consider. The following basic categories were considered to be first order and should be looked at more closely:

Size - < 1 MW, 1-20 MW, >20 MW (17 instead of 20 MW?)
Fuel - gases, liquids, syngas
Firing temperature - <1800^{o}F, 1800-2350^{o}F, >2350^{o}F (is residence time/more or as important?)

However, it was decided that firing temperature was not a practical subcategory to consider.
In addition, there was general agreement that we should consider how to include duct burners.

<u>Subcategories to Consider</u>: Size and Fuel